UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6

DATE: January 4, 2001

SUBJECT: Technical Support Document for Rulemaking on the Texas 1-Hour Ozone Attainment Demonstration, the 9% Rate-of-Progress plan, and the 15% Rate-of-Progress plan for the Dallas/Fort Worth Ozone Nonattainment Area

FROM: Herb Sherrow
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Attached is the Technical Support Document (TSD) to support the rulemaking on the ozone attainment demonstration, the 9% Rate-of-Progress (ROP) plan, and the 15% Rate-of-Progress plan prepared by the Texas Natural Resources Conservation Commission (TNRCC) and submitted by the Governor for the Dallas/Fort Worth (DFW) 1-hour ozone nonattainment area.

It is recommended that EPA propose to approve the 1-hour ozone Attainment Demonstration State Implementation Plan (SIP), the Post 96 ROP plan SIP, and the 15% ROP plan SIP for the DFW serious ozone nonattainment area. The EPA should also propose extending the attainment date for the DFW area to November 15, 2007, from November 15, 1999, based on transport from the Houston/Galveston/Brazoria (HGA) ozone nonattainment area; approval of the Motor Vehicle Emissions Budgets contained in the Attainment Demonstration SIP and the Post 1996 ROP plan SIP; and approval of the State's enforceable commitment to perform a mid-course review and submit a SIP revision to the EPA by May 2004. The EPA should also approve the State's enforceable commitment to revise the SIP Motor Vehicle Emissions Budget using the MOBILE6 on-road emissions model; approve revisions to the 1990 base year inventory; and find that the DFW area meets the Reasonably Available Control Technology (RACT) requirements for major sources of volatile organic compounds (VOC) emissions. The EPA should also propose to convert the conditional, interim approval of the DFW 15% plan (63 FR 62943) to a full approval because the requirements for full approval appear to have been met. The proposed action is based on the requirements of the Federal Clean Air Act (the Act) related to ozone demonstrations.

The DFW area was initially classified as "moderate" ozone nonattainment(56 FR 56694) with an attainment date of November 15, 1996. Since the area did not attain the standard by November 15, 1996, we reclassified the area to "serious" on March 20,1998 (63 FR 8128). The DFW ozone nonattainment area contains Dallas,

Tarrant, Collin, and Denton Counties (40 CFR Parts 81.314 and 81.326).

As a result of the reclassification to serious, the State was required to submit both an attainment demonstration SIP with an attainment date of November 15, 1999; and a Rate of Progress SIP covering the years from November 15, 1996 to November 15, 1999. The State submitted those SIPs on March 19, 1999. The State had previously submitted the moderate area 15% ROP plan on August 8, 1996, before the area was reclassified to serious. The 15% plan was given conditional, interim approval.

Our review showed that the attainment demonstration SIP did not contain a control strategy or adopted measures to implement the strategy and the ROP SIP did not achieve the required 9% reduction in emissions for the time period. Therefore, we found both SIPs incomplete and started SIP and Federal Implementation plan (FIP) sanctions clocks effective May 13, 1999.

The ROP SIP was resubmitted October 25, 1999, and was found complete on December 16, 1999, since the plan contained additional VOC reductions to meet the 9% requirement. The attainment demonstration SIP was resubmitted April 25, 2000, and was found complete on June 23, 2000, since it contained a modeled control strategy and adopted regulations to implement the strategy. These two complete findings stopped the SIP clock. The FIP clock continues to run until we approve the SIPs. A FIP should be in place on May 14, 2001, if we have not approved the SIPs by that time.

Four public hearings were held in the DFW area on January 26 and 27, 2000 on the April 25, 2000, submittal. The State formally adopted the submittal on April 19, 2000. In addition, The State held six other public hearings in other cities on the submittal.

TECHNICAL SUPPORT DOCUMENT FOR RULEMAKING ON THE TEXAS ATTAINMENT DEMONSTRATION, POST 1996 RATE-OF-PROGRESS PLAN, AND 15% RATE-OF-PROGRESS PLAN FOR THE DALLAS/FORT WORTH OZONE NONATTAINMENT AREA

I. EXECUTIVE SUMMARY

What is the purpose of this technical support document?

This Technical Support Document (TSD) reviews the ozone attainment demonstration State Implementation Plan (SIP) submitted by the Texas Natural Resource Conservation Commission (TNRCC) for the DFW ozone nonattainment area against Clean Air Act (the Act) requirements and Environmental Protection Agency (EPA) guidance for 1-hour ozone attainment demonstrations. This document also provides our review of Texas' request to extend the DFW area's attainment date to 2007, and the State's submitted Motor Vehicle Emissions Budget (MVEB) for transportation conformity. The technical support document also recommends proposed rulemaking actions regarding the submittal.

What is the purpose of the State submittals reviewed in this technical support document?

The TNRCC submittal includes ozone modeling and other analyses conducted to support a demonstration of attainment of the 1-hour National Ambient Air Quality Standard (NAAQS or standard) for ozone[1] (ozone standard) and the emission control strategy adopted by the State to attain the ozone standard. The Texas submittal includes emission control regulations needed to meet various requirements of the Act. The TNRCC submittal also requests an extension of the ozone attainment deadline to November 15, 2007 for DFW (the current attainment deadline for DFW is November 15, 1999). The ROP submittals are required to

What area is covered by the State submittals?

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[1] The 1-hour ozone standard is 0.12 parts per million (120 parts per billion [ppb]) and is attained when, for each monitor within the nonattainment area and its downwind environs, the annual average number of days with ozone standard exceedances during the most recent 3 years is less than or equal to 1.0. The annual average number of days with ozone standard exceedances at each monitor takes into consideration both the number of observed exceedances at the monitor and an adjustment factor to account for days during the required monitoring season (40 CFR Part 58) for which data are missing (40 CFR Part 50.9 and 40 CFR Part 50 Appendix H).

The submittal addresses attainment of the ozone standard in an ozone modeling domain which includes and focuses on the DFW ozone nonattainment area. The DFW ozone nonattainment area is defined (40 CFR Parts 81.314 and 81.326) to contain Dallas, Tarrant, Collin, and Denton Counties in Texas. The ROP plans address the DFW area.

Is the submittal approvable, and what are the suggested rulemaking actions?

As noted below in section IV of this TSD, the State has adequately documented the techniques and data used to demonstrate attainment of the ozone standard by 2007. The modeling procedures and input data used in the attainment demonstration meet our ozone modeling and attainment demonstration guidelines. The modeling results do not present a "clean" demonstration of attainment, because potential ozone standard exceedances are modeled to occur. The weight-of-evidence determinations, which are included in the submittal to support the attainment demonstration, however, when viewed in aggregate show that the demonstration of attainment is adequate for proposed approval.

It is concluded that the selected emission control strategy will allow for attainment of the ozone standard by 2007. Texas has submitted a MVEB for transportation conformity. We recommend approving the submitted motor vehicle emissions budget. Additionally, the State has demonstrated the basis for extending the ozone attainment date to 2007. We recommend proposing an attainment date of November 15, 2007, for the DFW ozone nonattainment area.

In summary, we recommend proposing rulemaking to do the following: (1) approve the DFW ozone attainment demonstration; (2) approve the MVEB for DFW; and (3) extend the ozone attainment date for the DFW nonattainment area to November 15, 2007.

II. BACKGROUND INFORMATION

What are ozone precursors, and what are the sources of these ozone precursors?

Ozone near the Earth's surface is a pollutant for which the EPA, through the Clean Air Act, has established a health-based standard. Ozone is not directly emitted into the air by most pollutant sources, but is formed chemically in the air through the reactions of ozone precursors in the presence of sunlight. The ozone precursors that participate in this chemical process are Volatile Organic Compounds (VOC), Oxides of Nitrogen (NOx),

and Carbon Monoxide (CO). CO is a minor ozone precursor, and is of no further interest in this technical support document. Ozone formation is accelerated or enhanced under certain meteorological conditions, such as high temperatures and low wind speeds. Higher ozone concentrations occur downwind of areas with relatively high VOC and NOx concentrations or in areas subject to relatively high background ozone and ozone precursor concentrations (ozone and ozone precursors entering an area as the result of transport from upwind source areas).

VOC emissions are produced by a wide variety of sources, including stationary and mobile sources. Significant stationary sources of VOC include industrial solvent usage, various coating operations, industrial and utility combustion units, petroleum and oil storage and marketing operations, chemical manufacturing operations, personal solvent usage, etc.. Significant mobile sources of VOC include on-road vehicle usage and off-road vehicle and engine usage, such as farm machinery, aircraft, locomotives, and motorized lawn care and garden implements.

NOx emissions are produced primarily through combustion processes, including industrial and utility boiler use, process heaters and furnaces, and on-road and off-road mobile sources.

What is the ozone attainment status of the area covered by the State submittals?

The DFW ozone nonattainment area is classified as serious nonattainment under section 181 of the Act. The area was originally classified as moderate but failed to attain the standard by November 15, 1996. Because of this failure the area was reclassified to serious on March 20, 1998.

What Clean Air Act requirements and Environmental Protection Agency guidelines apply to the submittals?

The Clean Air Act requirements for ozone attainment demonstrations for serious ozone nonattainment areas are determined by considering several sections of the Clean Air Act. Section 172(c)(6) of the Clean Air Act requires air quality plans (state implementation plans) to include enforceable emission limitations, and such other control measures, means or techniques as well as schedules and timetables for compliance, as may be necessary or appropriate to provide for attainment by the applicable attainment date (November 15, 1999 for serious ozone nonattainment areas). Section 172(c)(1) requires the implementation of all reasonably available control measures as expeditiously as practicable (including Reasonably Available

Control Technology {RACT}) and requires the SIP to provide for attainment of the National Ambient Air Quality Standards (NAAQS). Section 182(b)(1)(A) requires the state implementation plan to provide for specific annual reductions in emissions of VOC and NOx as necessary to attain the ozone NAAQS by the applicable attainment date. Finally, the "General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990" (57 Federal Register 13510 dated April 16, 1992) defines the use of photochemical grid modeling or other methods judged to be at least as effective to demonstrate attainment of the ozone NAAQS in ozone nonattainment areas.

The following documents contain EPA's guidelines affecting the development and review of ozone modeling and ozone attainment demonstrations and the review of other issues related to the ozone attainment demonstrations.

a. Guideline for Regulatory Application of the Urban Airshed Model, EPA-450/4-91-013, July 1991;

b. Procedures for Emission Inventory Preparation, Volume IV: Mobile Sources (Revised) (1992);

c. Guidance on Urban Airshed Model (UAM) Reporting Requirements for Attainment Demonstrations, EPA-454/R-93-056, March 1994;

d. Users Guide to MOBILE5 (Mobile Source Emission Factor Model), May 1994;

e. Memorandum, Subject: "Ozone Attainment Dates for Areas Affected by Overwhelming Transport," from Mary D. Nichols, Assistant Administrator for Air and Radiation, Environmental Protection Agency, September 1994;

f. Memorandum, Subject: "Ozone Attainment Demonstrations," from Mary D. Nichols, Assistant Administrator for Air and Radiation, Environmental Protection Agency, March 2, 1995;

g. Guidance on the Use of Modeled Results to Demonstrate Attainment of the Ozone NAAQS, EPA-454/B-95-007, June 1996;

h. Memorandum, Subject: "Guidance for Implementing the 1-Hour Ozone and Pre-Existing PM10 NAAQS," from Richard Wilson, Office of Air and Radiation, Environmental Protection Agency, December 1997;

i. Memorandum, Subject: "Extension of Attainment Dates for Downwind Transport Areas," from Richard D. Wilson, Acting Assistant Administrator for Air and Radiation, Environmental Protection Agency, July 16, 1998;

j. Memorandum, "Use of Models and Other Analyses in Attainment Demonstrations for the 8-Hour Ozone NAAQS (Draft)", 1998;

k. Memorandum, "Guidance on Motor Vehicle Emissions Budgets in One-Hour Ozone Attainment Demonstrations," from Merrylin Zaw-Mon, Acting Director of the Regional and State Programs Division, November 3, 1999;

l. Memorandum, Subject: "Guidance on the Reasonably Available Control Measures (RACM) Requirement and Attainment Demonstration Submissions for Ozone Nonattainment Areas," from John S. Seitz, Director, Office of Air Quality Planning and Standards, Environmental Protection Agency, November 30, 1999;

m. Draft Memorandum, "1-Hour Ozone NAAQS--Mid-Course Review Guidance." From John Seitz, Director, Office of Air Quality Planning and Standards.

The following summarizes key guideline elements and criteria taken from the above documents.

a. <u>Guideline for Regulatory Application of the Urban Airshed Model</u>.

The guideline covers the original guidelines for the development of ozone modeling analyses and ozone attainment demonstrations (subsequent guidelines discussed below have significantly modified portions of the guidance). The guideline describes: establishment of analysis protocols; episode selection; model validation procedures and criteria; and minimum attainment demonstration guidelines.

The attainment demonstration guidelines, subsequently modified, indicate that the selected attainment strategy should lead to no modeled exceedances of the 1-hour ozone standard in any of the modeled surface grid cells, for all time periods (episode days) modeled.

b. Procedures for Emission Inventory Preparation, Volume IV: Mobile Sources

This document presents emission inventory procedures and techniques applicable to state and local air programs. The CAA requires the development of "...comprehensive, accurate, and current..." inventories from all sources of each pollutant (PM, SOx, CO, NOx, & VOCs) for every nonattainment area, in conjunction with the preparation of SIPs. Methods are provided that can be used to identify sources, estimate emissions, and establish and maintain a useful, current mobile source emissions inventories. Specific methods are addressed for highway vehicles, nonroad sources, aircraft and locomotives.

C. <u>Guidance on Urban Airshed Model (UAM) Reporting Requirements for Attainment Demonstration</u>.

The guidance identifies seven broad areas to address in the attainment demonstration documentation:

1. modeling protocol used to plan for the selection of modeling approaches, input data required, area modeled, high ozone periods modeled, and modeling validation test procedures;

2. emission inventory preparation procedures and results;

3. air quality and meteorological data input preparation and results;

4. modeling diagnostic tests performed to improve model performance;

5. model validation performance results;

6. modeled emission control measure impacts and air quality simulation results corresponding with the selected attainment strategy; and

7. methods used for accessing input and output data files for the modeling system.

Table 1 of the guidance outlines the recommended documentation components.

The guidance notes that any revisions made to the modeling protocol subsequent to its adoption be documented in the protocol and addressed in the executive summary of the SIP submittal.

The submitted modeling documentation identify the problems encountered during the modeling process as well as deviations from EPA guidelines.

The following information be documented in the ozone attainment demonstration submittal:

1. sources of meteorological data and the quality assurance checks made on the data obtained from these sources;

2. sources of air quality data and the quality assurance checks made on the data obtained from these sources;

3. modeling domain boundary conditions as a function of time for each modeled high ozone episode. The boundary conditions are the pollutant concentrations along the boundary of the modeling domain as a function of location and time;

4. modeling domain initial conditions for each modeled high ozone episode;

5. methods used to develop future boundary conditions and future initial conditions;

6. maps indicating the locations of meteorological stations and air quality monitors with county boundaries annotated;

7. methods and base data used to derive time-specific wind fields;

8. methods and base data used to derive time-specific mixing heights and the upper air stations used as sources of base input data; and

9. graphics illustrating patterns of wind fields, temperatures as a function of time and location, mixing heights, etc.; through each modeled episode day.

The documentation should summarize the diagnostic analyses and sensitivity analyses, including quality assurance checks, used to test the modeling system and input data files.

A qualitative understanding of ozone formation and transport in the modeling domain should be demonstrated in the modeling documentation.

The documentation should describe the modeling system's performance through the use of both graphical and statistical measures.

d. Users Guide to MOBILE5 (Mobile Source Emission Factor Model)

The Mobile5 computer program estimates hydrocarbon, carbon monoxide, and oxides of nitrogen emission factors for gasoline-fueled and diesel highway motor vehicles.

Can be used for eight individual vehicle types in two regions (low- and high- altitude) of the country.

Inputs include: ambient temperatures, average travel speed, operating modes, fuel volatility, and mileage accrual rates.

e. Memorandum, "Ozone Attainment Dates for Areas Affected by Overwhelming Transport."

This policy notes that, for areas that are affected by overwhelming ozone (and ozone precursor) transport from upwind areas with worse ozone nonattainment classifications (later attainment deadlines), it is reasonable to temporarily suspend the attainment deadline. This policy, however, does not relieve an affected downwind area from meeting Clean Air Act requirements based on its own current ozone nonattainment classification.

The State with an affected downwind area demonstrates through ozone modeling and other analyses that the subject area is affected by overwhelming transport, interfering with the ability of the area to attain the ozone standard by the statutory attainment deadline for its ozone classification. The modeling should also support a new attainment date for the area assuming

that the upwind emissions are adequately controlled and meet Clean Air Act requirements by a future date certain. The new attainment date for the downwind area may not extend beyond the attainment deadline of the upwind source area.

f. Memorandum, "Ozone Attainment Demonstrations."

This memorandum provides guidance on an alternative approach to provide States with flexibility in their planning efforts for ozone nonattainment areas classified as serious and above. The guidance applies to areas significantly affected by ozone transport.

The guidance recognizes that it is difficult for areas significantly affected by ozone transport to develop attainment demonstrations by the Act's required submittal date of November 15, 1994 (a number of States had already failed to make such submittals due, in part, to this problem) by the date of this memorandum. The memorandum established a two-phased approach to the development and submittal of attainment demonstration submittals. Under Phase I, States were to submit a plan to implement, by May 1999, a set of specific emission control measures, including sufficient emission reductions to a achieve a 9 percent post-1996 rate-of-progress emission reduction to satisfy rate-of-progress requirements through November 1999.

Phase I SIP submittals were to include either ozone modeling with interim assumptions about future ozone transport or modeling that showed attainment based on assumed boundary conditions. These submittals also included enforceable commitments to:

1. participate in a consultative process to address and reduce regional ozone transport (this was accomplished through the Ozone Transport Assessment Group process);

2. adopt additional local emission control measures as necessary to attain the ozone standard, meet the rate-of-progress requirements, and eliminate significant downwind ozone transport; and

3. identify any emission reductions that are needed from upwind areas to allow the affected downwind area to attain the ozone standard.

The Phase I submittal was also to specify the schedule for completing adoption of the additional rules needed to reach attainment of the 1-hour standard.

Phase I submittals were adopted as SIP revision submittals. It should be noted, however, that the EPA has not ruled on these submittals to formally incorporate into the SIPs.

The guideline notes that Phase II of the revised attainment demonstration approach would begin with a two year process, ending at the close of 1996 (it actually did not close until near the end of 1997), to assess regional emission control strategies and refine local emission control strategies to take into account potential regional control strategies. If an agreement on regional emission control strategies could not be reached by the end of 1996, the EPA, by the end of 1997, was to use its authority under sections 110 and 126 of the Clean Air Act to work with all affected States to ensure that the required regional emission reductions were achieved (this led to the 1998 NOx SIP call).

Based on the results of the two year regional emission control study, States were expected to submit revised, final ozone attainment demonstrations by mid-1997 to demonstrate attainment of the ozone standard through the use of local and regional emission reductions. Emission control rules sufficient to attain the ozone standard were to be submitted to the EPA no later than the end of 1999.

g. <u>Guidance on the Use of Modeled Results to Demonstrate Attainment of the Ozone NAAQS</u>.

This guidance notes that the prior ozone attainment demonstration policy, based on demonstrating no future (post-attainment date) exceedances of the ozone standard, was overly restrictive due to its incompatibility with the format of the ozone standard and its failure to properly account for the uncertainties associated with the photochemical modeling process. The revised policy contained in this guidance document allows some modeled exceedances depending on the severity (ozone conduciveness) of the modeled days. The revised policy lays out two modeling approaches for demonstrating attainment of the ozone

standard. The first approach (the "statistical approach") combines a statistical test with a weight-of-evidence determination. The second approach (the "deterministic approach") combines a deterministic test (similar to the original policy approach) with a weight-of-evidence determination.

Besides describing the two analysis approaches, the guidance discusses the factors affecting weight-of-evidence determinations and acceptance of modeling results indicating peak ozone concentrations above the ozone standard. Sufficient weight-of-evidence can be used to demonstrate that attainment of the ozone standard is likely even though some potential future ozone standard exceedances have been modeled.

The guidance discusses a 3-stage analysis process: the Phase II analysis; a mid-course review; and a third review of air quality and emissions data at or shortly before the statutory attainment date for severe ozone nonattainment areas (circa 2004 - 2006). The subsequent analyses fine tune the attainment strategy.

h. Memorandum, "Guidance for Implementing the 1-Hour Ozone and Pre-Existing PM10 NAAQS."

This memorandum discusses a number of implementation issues related to the 1-hour ozone standard. With regard to attainment demonstrations, this policy concludes that, because the Ozone Transport Assessment Group recommendation was delayed for approximately 9 months, the EPA believed that the States should have until April 1998 to submit attainment demonstrations (this applies to serious and above ozone nonattainment areas). The submittals were to present evidence that all measures and regulations needed to achieve attainment have been adopted and implemented or are on an expeditious schedule to be adopted and implemented. For severe and higher classified ozone nonattainment areas, the April 1998 submittals were to contain a commitment to submit a plan on or before the end of 2000 which contains: (1) target calculations for post-1999 rate-of-progress milestones up to the attainment date; and (2) adopted regulations needed to achieve the rate-of-progress milestones and to attain the 1-hour standard.

i. Memorandum, "Extension of Attainment Dates for Downwind

Transport Areas."

This memorandum provides guidance on the extension of attainment dates for ozone nonattainment areas classified as moderate or serious and which are downwind of areas that have interfered with their ability to demonstrate attainment and to attain the ozone standard by the dates specified in the Clean Air Act. Upon approval of an area's attainment demonstration and attainment date extension request, the area is no longer subject to bump up to a higher classification for failure to attain the ozone standard by the original attainment deadline.

This guidance notes that the EPA will consider extending the attainment date for an area that:

1. has been identified as a downwind area affected by transport from either an upwind area in the same State with a later attainment date or an upwind area in another State that significantly contributes to downwind nonattainment;

2. has submitted an approvable attainment demonstration with any necessary, adopted local measures and with an attainment date that shows that it will attain the 1-hour ozone standard no later than the date that the NOx emission reductions are expected from upwind areas under the final NOx SIP call and/or the statutory attainment date for the upwind nonattainment areas;

3. has adopted all applicable local emission control measures required under the area's current ozone classification and any additional measures necessary to demonstrate attainment, assuming the emission reductions occur as required in the upwind areas; and

4. has provided that it will implement all adopted emission control measures as expeditiously as practicable, but no later than the date by which the upwind emission reductions needed for attainment will be achieved.

j. Memorandum, "Use of Models and Other Analyses in Attainment Demonstrations for the 8-Hour Ozone NAAQS

(Draft)", 1998.

- This document recommends procedures for estimating if a control strategy to reduce emissions of ozone precursors will lead to attainment of the 8-hour NAAQS for ozone. The document also describes how to apply air quality models to generate the predictions later used to see if attainment is shown. Guidance in this document applies to "transitional" nonattainment areas for which modeling is needed or desired. This includes locations that violate the 8-hour ozone NAAQS and may or may not violate the 1-hour NAAQS. The document suggests that this approach is an integral part of an attainment demonstration. The approach is relevant to the 1-hour attainment standard.

k. Memorandum, "Guidance on Motor Vehicle Emissions Budgets in One-Hour Ozone Attainment Demonstrations," from Merrylin Zaw-Mon, Acting Director of the Regional and State Programs Division, November 3, 1999.

States are to establish motor vehicle emissions budgets (MVEB), which are considered a necessary component of an attainment demonstration. Control measures are to be adopted to bring the area into attainment and must support the MVEB. This document sets forth EPA policy with respect to MVEBs associated with attainment demonstrations.

1. Criteria in determining if a MVEB is "adequate". Must meet the minimum criteria detailed in 40 CFR 93.118(e)(4).

2. How adequacy criteria is applied with respect to Phase II attainment demonstration submissions. The SIP must identify and quantify MVEBs for VOCs and NOx. The MVEBs must reflect appropriate and up-to-date projection of MVEBs for the attainment year. The motor vehicle emissions inventory that establishes the budget must include the effects of all motor vehicle controls that will be in place by the attainment year. Control measures must be specifically identified, and their emission reductions must be quantified.

3. Special situations with Phase II SIPs. If an area is requesting an attainment data extension, the motor vehicle emissions budget must be defined for the

extended attainment date. Motor vehicle-related measures that will be in effect in the attainment year must be included in the motor vehicle emissions budget.

4. Process for determining adequacy. Notification of SIP submission followed by a public comment period, EPA's adequacy determination, and Federal Register notice.

l. Memorandum, "Guidance on the Reasonably Available Control Measures (RACM) Requirements and Attainment Demonstration Submissions for Ozone Nonattainment Areas."

This memorandum clarifies EPA's policy on what constitutes "as expeditiously as practicable" for the purposes of attaining the ozone standard, as required under sections 172(a)(2)(A) and 181(a) of the Clean Air Act.

The policy notes that the EPA will review each attainment demonstration submission for the ozone standard to determine whether it provides for all Reasonably Available Control Measures (RACM) necessary to attain the ozone standard as expeditiously as practicable and provides for implementation of those measures as expeditiously as practicable. The State's submission should contain sufficient information for the EPA to make such a determination.

To allow the EPA to determine whether a State has adopted all RACM necessary for expeditious attainment of the ozone standard, the State should provide a justification as to why measures within the arena of potentially reasonable measures have not been adopted. Sources of potentially reasonable measures include measures adopted in other nonattainment areas and measures that the EPA has identified in guidelines and other documents.

In order for the EPA to determine whether an area has provided for expeditious implementation of RACM, the State should explain why the selected implementation schedule is the earliest possible schedule based on the specific circumstances of the area. Such claims should be specifically grounded in evidence of economic or technologic infeasibility.

m. Draft Memorandum, "1-Hour Ozone NAAQS--Mid-Course Review Guidance."

This memorandum identifies the methodology for reviewing whether a State is "on-track" toward attaining the 1-hour NAAQS for ozone within the prescribed time limits, and is applicable to a mid-course review. The methodology first requires an administrative review to determine whether a substantial number of measures called for in an approved SIP have been implemented. If it is determined that this has occurred, then data analyses are performed to determine if it is likely that the SIP is "on-track" toward attainment. Information resulting from these analyses are used in a weight of evidence determination to see if the preponderance of evidence suggests attainment will occur within prescribed time limits.

Based on the various Clean Air Act requirements and the EPA guidelines, what are the modeling requirements for the attainment demonstration?

For purposes of demonstrating attainment, the "General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990" (57 Federal Register 13510 dated April 16, 1992) defines the use of photochemical grid modeling or other methods judged to be at least as effective to demonstrate attainment of the ozone NAAQS in ozone nonattainment areas. The photochemical grid model is set up using meteorological conditions conducive to the formation of ozone in the nonattainment area and its modeling domain. Emissions for a base year are used to evaluate the model's ability to reproduce actual monitored air quality values. Following validation of the modeling system for a base year, emissions are projected to an attainment year to predict air quality changes in the attainment year due to the emission changes, which include growth up to and controls implemented by the attainment year. A modeling domain is chosen that encompasses the nonattainment area. Attainment is demonstrated when all predicted ozone concentrations inside the modeling domain are at or below the ozone standard or an acceptable upper limit above the standard permitted under certain conditions by EPA's guidance. When the predicted concentrations are above the standard or upper limit, EPA guidance allows for an optional weight-of-evidence determination which incorporates other analyses, such as air quality and emissions trends, to address uncertainty inherent in the application of photochemical grid models. This latter approach may be used under certain

circumstances to support the demonstration of attainment.

The EPA guidance identifies the features of a modeling analysis that are essential to obtain credible results. First, the State must develop and implement a modeling protocol. The modeling protocol describes the methods and procedures to be used in conducting the modeling analyses and provides for policy oversight and technical review by individuals responsible for developing or assessing the attainment demonstration (State and local agencies, EPA, the regulated community, and public interest groups). Second, for purposes of developing the information to put into the model, the State must select air pollution days, i.e., days in the past with high ozone concentrations exceeding the standard, that are representative of the ozone pollution problem for the nonattainment area. Third, the State needs to identify the appropriate dimensions of the area to be modeled, i.e., the modeling domain size. The domain should be larger than the designated nonattainment area to reduce uncertainty in the boundary conditions and should include any large upwind sources just outside the nonattainment area. In general, the domain is considered the local area where control measures are most beneficial to bring the area into attainment. Alternatively, a much larger modeling domain may be established, addressing the impacts of both local and regional emission control measures on a number of ozone nonattainment areas. In both cases, the attainment determination is based on the review of ozone predictions within the local area where control measures are most beneficial to bring the area into attainment (referred to as the local modeling domain). Fourth, the State needs to determine the grid resolution. The horizontal and vertical resolutions in the model affect the dispersion and transport of emission plumes. Artificially large grid cells (too few vertical layers and horizontal grids) may dilute concentrations and may not properly consider impacts of complex terrain, complex meteorology, and land/water interfaces. Fifth, the State needs to generate meteorological and emissions data that describe atmospheric conditions and emissions inputs reflective of the selected high ozone days. Finally, the State needs to verify that the modeling system is properly simulating the chemistry and atmospheric conditions through diagnostic analyses and model performance tests (generally referred to as model validation). Once these steps are satisfactorily completed, the model is ready to be used to generate air quality estimates to support an attainment demonstration.

The modeled attainment test compares model predicted 1-hour daily maximum ozone concentrations in all grid cells for the attainment year to the level of the ozone standard. A predicted

peak ozone concentration above 0.124 ppm (124 ppb) indicates that the area is expected to exceed the standard in the attainment year. This type of test is often referred to as an exceedance test. The EPA's June 1996 guidance recommends that States use either of two exceedance tests for the 1-hour ozone standard: a deterministic test or a statistical test.

The deterministic test requires the State to compare predicted 1-hour daily maximum ozone concentrations for each modeled day[2] to the attainment level of 0.124 ppm. If none of the predictions exceed 0.124 ppm, the test is passed.

The statistical test takes into account the fact that the form of the 1-hour ozone standard allows exceedances. If, over a 3 year period, the area has an average of 1 or fewer ozone standard exceedances per year at any monitoring site, the area is not violating the standard. Thus, if the State models a severe day (considering meteorological conditions that are very conducive to high ozone levels and that should lead to fewer than 1 exceedance per year at any location in the nonattainment area and in the modeling domain over a 3 year period), the statistical test provides that a prediction above 0.124 ppm up to a certain upper limit may be consistent with attainment of the standard.

The acceptable upper limit above 0.124 ppm is determined by examining the size of exceedances at monitoring sites which meet or attain the 1-hour standard. For example, a monitoring site for which the 4 highest 1-hour average concentrations over a 3 year period are 0.136 ppm, 0.130 ppm, 0.128 ppm, and 0.122 ppm is attaining the standard. To identify an acceptable upper limit, the statistical likelihood of observing ozone air quality exceedances of the standard of various concentrations is equated to the severity of the modeled day. The upper limit generally represents the maximum ozone concentration level observed at a location that would be expected to occur no more than an average of once a year over a 3 year period. Therefore, if the maximum ozone concentration predicted by the model is below the acceptable upper limit, in this case 0.136 ppm, then EPA might conclude that the modeled attainment test is passed. Generally, exceedances well above 0.124 ppm are very unusual at monitoring sites meeting the standard. Thus, these upper limits are rarely significantly higher than the attainment level of 0.124 ppm.

What are the additional analyses that may be considered when the

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[2] The initial, "ramp-up" days for each episode are excluded from this determination.

modeling fails to show attainment?

When the modeling does not conclusively demonstrate that the area will attain, additional analyses may be presented to help determine whether the area will attain the standard. As with other predictive tools, there are inherent uncertainties associated with modeling and its results. For example, there are uncertainties in some of the modeling inputs, such as the meteorological and emissions data bases for individual days and in the methodology used to assess the severity of an exceedance at individual sites. The EPA's guidance recognizes these limitations and provides a means for considering other evidence to help assess whether attainment of the standard is likely. The process by which this is done is called a weight-of-evidence determination.

Under a weight-of-evidence determination, the State can rely on and EPA will consider factors such as: model performance and results, episode selection, other modeled attainment tests, e.g., relative reduction factor analysis; other modeled outputs, e.g., changes in the predicted frequency and pervasiveness of exceedances and predicted changes in the design value; actual observed air quality trends; estimated emission trends; analyses of air quality monitored data; the responsiveness of the model predictions to further controls; and, whether there are additional control measures that are or will be approved into the SIP but were not included in the modeling analysis. This list is not an exhaustive list of factors that may be considered and these factors could vary from case to case. The EPA's guidance contains no limit on how close a modeled attainment test must be to passing to conclude that other evidence besides an attainment test is sufficiently compelling to suggest attainment. However, the further a modeled attainment test is from being passed, the more compelling the weight-of-evidence needs to be.

Besides the modeled attainment demonstration, what other issues must be addressed in the attainment demonstration state implementation plans?

In addition to the modeling analysis and weight-of-evidence determination demonstrating attainment, the EPA has identified the following key elements which must be present in order for EPA to approve the 1-hour attainment demonstration SIP.

a. Clean Air Act measures and other measures relied on in the modeled attainment demonstration state implementation plan.

To receive final approval of the attainment demonstration SIP, the State must have adopted the emission control measures required under the Act for the area's classification or must have established negative source declarations for the source categories for which the area has no major sources that are subject to Clean Air Act requirements for such sources. All required emission controls must be implemented prior to the beginning of the ozone season (March through October in the DFW area, 40 CFR Part 58, Appendix D)in the area's attainment year to assure attainment of the ozone standard in the attainment year.

The attainment demonstration must incorporate the emission impacts of, and the SIP submittal must address the rule development for, any additional emission control measures needed to achieve attainment. The rules for these emission controls must also have been adopted before the EPA can finally approve the attainment demonstration. The emission controls for these sources must be implemented as expeditiously as practicable, but no later than prior to the beginning of the ozone season in the attainment year (in this case January 1, 2007).

For purposes of fully approving the State's SIP, the State must adopt and submit all VOC and NOx control regulations for affected sources within the State and within the local modeling domain as reflected in the adopted emission control strategy and as reflected in the attainment demonstration.

Table 1 presents a summary of the Clean Air Act requirements that need to be met for a serious ozone nonattainment area for the 1-hour ozone standard. These requirements are specified in sections 182(b) and 182(f) of the Act. Information on additional measures that Texas has adopted and relied on in their SIP submissions is not shown in this table, but is addressed later in this TSD.

TABLE 1
CLEAN AIR ACT REQUIREMENTS FOR
SERIOUS NONATTAINMENT AREAS

New Source Review (NSR) regulations for VOC and NOx, including an offset ratio of 1.2:1 and a major VOC and NOx source size cutoff of 50 tons per year (TPY)
Reasonably Available Control Technology (RACT) for VOC and NOx
15 percent Rate-Of-Progress (ROP) plan for VOC through 1996
9 percent Rate-Of-Progress (ROP) plan for VOC through 1999
1990 baseline emissions inventory for VOC and NOx
Periodic emissions inventory and source emission statement regulations
Enhanced Vehicle inspection and maintenance (I/M) program
Clean fuel vehicle program
Enhanced monitoring program

b. Motor vehicle emissions budget.

The MVEB is the level of total allowable on-road emissions established by a control strategy implementation plan or maintenance plan. An attainment demonstration SIP must establish the motor vehicle emissions that will be produced in the attainment year and must demonstrate that this emissions level, when considered with emissions from all other sources, is consistent with attainment. In this case, the MVEB establishes the maximum level of on-road emissions that can be produced in the attainment year of 2007. The MVEBs must meet certain criteria which are listed in the Transportation Conformity Rule (40 CFR Part 93 Subpart A Section 93.118) and all pertinent SIP requirements before the budgets can be approved as part of the attainment demonstration SIP. It is important because the MVEB is used to determine the conformity of transportation plans and programs to the SIP, as described by section 176(c)(2)(A) of the Act.

What is EPA's policy with regard to an ozone attainment date

extension?

On July 16, 1998, a guidance memorandum entitled "Extension of Attainment Dates for Downwind Transport Areas" was issued by the EPA. That memorandum included EPA's interpretation of the Act regarding the extension of attainment dates for ozone nonattainment areas that have been classified as moderate or serious for the 1-hour ozone standard and which are downwind of areas that have interfered with their ability to demonstrate attainment of the ozone standard by dates prescribed in the Act. For the criteria for approval of attainment date extensions, see the discussion of this policy memorandum (h) above.

Once an area receives an extension of its attainment date based on ozone/precursor transport impacts, the area would no longer be subject to reclassification to a higher ozone nonattainment classification based on its original attainment date. If the DFW area is granted an attainment date extension, it would no longer be subject to a reclassification to severe nonattainment for ozone and no longer subject to the additional emission control requirements that would result from the reclassification to severe nonattainment based on its original attainment date.

Texas has requested an extension of the attainment date for the DFW nonattainment area in conjunction with the ozone attainment demonstration submittals. The ozone attainment demonstration considers November 15, 2007 as the revised ozone date. The 2007 attainment date reflects the current attainment date for the HGA area, as the DFW is downwind of the HGA area and is affected by transport from HGA.

What are the Clean Air Act requirements and EPA policy with regard to NOx emission controls?

Section 182(f)(1) of the Act requires SIPs to include emission control provisions for major stationary sources of NOx as required for major stationary sources of VOC. For moderate and above ozone nonattainment areas, this includes emission control requirements for NSR and RACT.

III. SUMMARY OF THE STATE SUBMITTAL

ATTAINMENT DEMONSTRATION

1. General Information

What are the contents of the attainment demonstration submittal?

The April 25, 2000 submittal, concerning the ozone attainment demonstration and an extension of the attainment date for the DFW ozone nonattainment area, contains:

1. A photochemical modeling demonstration and additional weight-of-evidence analyses supporting the photochemical modeling demonstration,

2. An accompanying control strategy, comprised of:
   a. Regulations and initiatives in the DFW area(and their documentation);
   b. Regulations and initiatives in certain counties surrounding the DFW area (and their documentation); and
   c. Additional regional rules and orders (and their documentation), relied upon for demonstrating attainment in the DFW area.

3. A 2007 Motor Vehicle Emissions Budget (MVEB)for transportation conformity;

4. A demonstration of transport from the HGA area supporting an attainment date extension to 2007;

5. Emissions growth estimates, and a 2007 forecast emissions inventory; and,

6. A commitment to perform a mid-course review with submittal to us by May 1, 2004.

The attainment control strategy; i.e., regulations, initiatives, and orders, are primarily designed to control Nitrogen Oxides (NOx) emissions from various sources, since the modeling shows ozone reduction is more sensitive to NOx controls. For purposes of this action, we are reviewing the modeling, weight-of-evidence support, the transport analysis, the MVEB, forecasted emissions inventory, the mid-course enforceable commitment, and the Transportation Control Measures, the Speed limit reductions and the Voluntary Mobile Emissions Program local initiatives. We are also reviewing the enforceable commitment to perform new mobile source modeling for the DFW area, using MOBILE6, within 24 months of the model's release, including a provision stating that if transportation conformity analysis is to be performed between 12 months and 24 months after the MOBILE6 release, transportation conformity will not be determined until Texas submits a motor vehicle emissions budget which is developed using MOBILE6 and which we find adequate.

C. Photochemical Modeling

What model approach was used for the analysis?

The state used the Comprehensive Air Quality Model with Extensions (CAMx) version 2.01 photochemical grid model to conduct both the SIP attainment demonstration modeling and the downwind transport modeling for the DFW ozone nonattainment area. The State demonstrated that CAMx performed better than UAM version IV, the regulatory model, in the HGA nonattainment area and petitioned us to approve its use in the DFW nonattainment area. We approved the use of CAMx for the DFW ozone nonattainment area based upon the model's better performance in the HGA nonattainment area. This was considered to be valid for the DFW area. The State's modeling activities were performed as outlined in a series of the modeling protocols, according to our "Guideline for Regulatory Application of the Urban Airshed Model" (July, 1991) (Guideline). The final modeling protocol developed by the State was submitted in August 1999. This protocol was reviewed and approved by us. The State used a relatively large modeling domain with nested grids to capture the influence of regional and long-range transport. The modeling domain covers the DFW ozone nonattainment area which is comprised of Dallas, Tarrant, Collin, and Denton Counties. The modeling domain also covers most counties in central and east Texas, including the ozone nonattainment counties of Harris, Jefferson, Orange, Chambers, Hardin, Liberty, Montgomery, Waller, Brazoria, Galveston, and Fort Bend counties. It also covers a number of other States; e.g., Louisiana and Mississippi in the southeastern portion of the country.

How were exceedance days evaluated and what days were modeled?

Our 1991 Guideline sets forth a recommended procedure for selecting ozone exceedance days appropriate for conducting a modeling demonstration. This procedure, in part, considers wind rose analyses based upon the four morning hours of 0700 to 1000 local standard time. These wind rose analyses are used to define the meteorological patterns for source-receptor relationships associated with high ozone events. The State used this method for defining meteorological patterns. The number of ozone exceedance days for the period, 1990 - 1996, associated with each meteorological pattern was identified. The most prominent meteorological pattern for ozone exceedance days (i.e., 70%) was calm winds; i.e., wind speeds < 3mph. The meteorological pattern with southerly winds was the second most prominent pattern with 25% of the ozone exceedance days.

A total of eleven ozone exceedance days were identified as candidates for modeling. From these, the State chose the candidate episodes in 1995 (calm winds) and 1996 (southerly winds), in part, since they are more applicable to the most currently available emissions inventory (the 1996 Periodic) and since more ambient data is generally available for these episodes.

The State selected June 21 & 22, 1995, which form a multi-day episode, as two of the three primary episode days to model from the calm meteorological regime. These two days also had 1-hour exceedances fairly close to the current ozone design value (i.e., 139 ppb). For the third primary episode day, the State selected July 3, 1996. Although the meteorological pattern on July 3rd had neither calm nor southerly winds, since the two days prior exhibited southerly winds, the rationale for this selection is that July 3rd is associated with southerly winds. It also occurred during the period of enhanced aerometric monitoring. The high ozone episode days the State selected and modeled meet with the requisite three primary episode days and cover the two predominate types of meteorological patterns associated with high ozone in the DFW area. A more complete description of the episode selections and technical rationales can be found in the TSD.

How was potential transport from the HGA area addressed?

The State demonstrated the potential transport of ozone and ozone precursors from the upwind HGA nonattainment area upon the DFW area for both the 1995 and the 1996 episodes. This demonstration was primarily based upon two modeling analyses. The first used the same set of air quality and meteorological inputs as used in the base case simulation, but with an emissions data set in which anthropogenic (man-made) emissions from the 8-county HGA area were eliminated. The second was an ozone source apportionment analysis. The CAMx model has an optional feature which tracks the sources of precursors that contribute to the ozone formed at a given location. This feature was used to assess the culpability of sources in the 8-county HGA nonattainment area to the DFW four-county nonattainment area. These analyses show that for July 3, 1996, 2-4 ppb of ozone in portions of the DFW area comes from HGA sources.

The State also submitted a back trajectory analysis of ozone exceedance days in the DFW area for the six year period, 1993 to 1998. During this period there were 160 exceedance days in the DFW area and approximately ten percent had trajectories going back to the HGA area.

Thus, emissions from the HGA area have the potential to influence DFW's ability to attain the 1-hour ozone standard. It is EPA's proposed technical position that for some ozone exceedance days, the DFW area is affected by transport from the HGA area. On other exceedance days, the DFW area is affected only by ozone precursor emissions generated within the DFW area itself.

Based on this transport demonstration, we propose to grant the State's request for an extension of the attainment date to November 15, 2007. A detailed discussion of the acceptability of the demonstration is in the section on EPA's Analysis in this notice. A discussion of the Transport Policy is in the BACKGROUND section of this notice.

D. Photochemical Modeling Results

What were the modeling results for the primary episode days and for the future attainment date?

The model simulated ozone concentrations on selected primary episode days for the 1995 and 1996 episodes using emissions specific for those days, and emissions forecast to a 2007 future year. The resulting DFW area summary of the performance statistics and ozone peaks for 1995, 1996, and 2007 are shown in Table 1. The normalized bias and gross error performance statistics shown in Table 1 are well below our recommended maximum levels. This indicates that the model adequately replicated the spacial and temporal ozone formation that occurred on these ozone exceedance days. This provides an assurance that the model is useful in testing future control measures. These modeled ozone peaks reflect the results of the 2007 forecast emissions and control strategy for the 1995 and 1996 episode days.

Table 1: Summary of Performance Statistics and Peak Observed and Modeled Ozone Concentrations (ppb) in the DFW Ozone Nonattainment Area

Period	Episode Days		
Primary Episode Day	6/21/95	6/22/95	7/3/96
Peak Observed	144	135	144
Peak Modeled Base Case	132.8	137.6	159.2
Peak Modeled 2007 Future Case	121.1	126.1	144.2

Peak Modeled 2007 Post-Control Case	110.3	113.1	131.5
Normalized Bias Greater Than 60 ppb	-10.1%	-8.8%	-3.4%
Normalized Gross Error Greater Than 60 ppb	12.2%	12.5%	15.0%

Do the modeling results demonstrate attainment of the ozone standard?

The Guidance on Use of Modeled Results to Demonstrate Attainment of the Ozone NAAQS, (June, 1996) recommends the use of either a statistical or deterministic approach to demonstrate attainment. Both of these approaches allow for the use of Weight-of-Evidence (WOE) to supplement the modeling results. The State elected to use the deterministic approach with WOE. As noted in Table 1, the 1-hour maximum predicted ozone concentration for the 2007 post-control modeling in the DFW area on the controlling day (July 3, 1996) (131.5 ppb) is above the standard; whereas, the other two episode days modeled are well below the standard.

The 2007 post-control modeling by itself does not conclusively demonstrate attainment of the standard; (i.e., the deterministic test), but its results are so close to attainment to warrant the consideration of WOE analyses that support the demonstration of attainment. The State conducted several WOE analyses (see next section for further details) to provide additional confirmation that the demonstration shows that DFW will attain the standard by 2007 with the planned emission controls.

E. Weight-Of-Evidence

What WOE analyses and determinations are used to support the modeled attainment demonstration?

As presented in section D, our 1996 guidance document provides for the use of WOE to complement the control strategy modeling in demonstrating attainment. The key concept behind our June 1996 guidance is that determination of attainment, based on monitored ozone concentrations, allows for some exceedances of the 1-hour standard. Thus, even though the model may show some areas with peak concentrations slightly above the NAAQS, such modeled exceedances do not necessarily imply that monitored

attainment will not be achieved.

Since the 2007 post-control modeling for the July 3, 1996, episode day is the only day exceeding the standard, most of the WOE analyses address this day. The State submitted the following WOE analyses:

1. Notable higher peak modeled than monitored ozone concentrations: The monitored peak in the DFW area on July 3, 1996, was 144 ppb versus a modeled peak of 159 ppb. Thus, there is some uncertainty regarding the modeled peak, even though the episode satisfied all of our criteria for model performance.

2. Meteorology: As previously indicated, the specific meteorology on July 3, 1996, was not of the types most associated with ozone exceedances in the DFW area. In addition, although the model performance for July 3, 1996, was acceptable, there was an indication that the meteorological features were not fully replicated for this day. There were scattered rain showers in the area which may have presented some meteorological effects which could not be modeled.

3. Additional ozone reduction metrics: The State presented additional metrics, aside from the modeled peak. The metrics presented are Area of exceedance, Area-hours of exceedance, and a measure of potential exposure. These metrics measure the geographic extent and temporal duration and duration of the ozone exceedance for various control strategies. The results show that the modeled control strategy produces a significant reduction in each of these additional metrics. This indicates that the selected control strategy should reduce the geographical and temporal aspects of the ozone exceedance, as well as the peak concentration.

4. Estimated future design value: The estimated future design value, as recommended in our draft guidance for assessing attainment of the 8-hour standard, is determined by proportioning the change in the modeled ozone results to a change in the design value.

To estimate the future design value, the State developed a ratio of the 2007 post-control modeling results to that of the original Base modeling results. Since episodes chosen for the DFW attainment demonstration occurred during 1995 and 1996, the State used monitoring data collected from 1995 to 1997 in the DFW area to

establish the base design values. Then the ratio of the modeling results is multiplied by the 1995-1997 base design value to obtain an estimated future design value. Using this procedure the estimated future design value for July 3rd is 115.3 ppb, which is less than the standard. This result suggests that it is likely that the area will attain the standard by 2007.

5. Design value trends: The State analyzed historic monitored air quality data in the DFW area for the period of 1981 to 1999. The measure of air quality which determines the nonattainment classification is the design value. The design value is the highest of the fourth-highest daily peak ozone concentration over a three year period at any monitoring site in the area. There had been a general downtrend in the design value; however, it has remained constant in recent years. The constant trend has occurred despite dramatic increases in the level of construction and economic activity and substantial growth in the mobile fleet. Existing regulations appear to be adequate to keep the design value constant and new regulations included in the SIP should provide a significant decline in the design value.

6. New technologies: The State plans to continue reviewing and implementing new technologies as appropriate for the DFW area. The area will also benefit from our requirements for cleaner vehicles and fuels in the future.

In summary, the State's WOE analyses provide adequate support for the State's attainment demonstration. Maintaining air quality through recent periods is demonstrated and future progress in air quality improvement is shown to be likely. Our decision on the adequacy of the WOE is based on the composite of the analyses, and not on any single element. The WOE complements the modeled control strategy and indicates attainment should be reached by November 15, 2007.

The 1996 guidance recognizes a need to perform a mid-course review as a means for addressing uncertainty in the modeling results. Because of the uncertainty in long term projections, we believe that a viable attainment demonstration that relies on weight of evidence should contain provisions for periodic review of monitoring, emissions, and modeling data to assess the extent to which refinements to emission control measures are needed. The State submitted an enforceable commitment to perform such a mid-course review and to submit a SIP revision by May 2004.

3. Emission Control Strategies

What emission control strategies were included in the attainment demonstration?

The DFW attainment demonstration SIP is directed at reductions of NOx since the modeling shows reductions of NOx will be most effective in bringing the area into attainment of the Standard.

The attainment demonstration SIP relies on a combination of Federal measures, State measures, CAA statutory requirements , local initiatives applied to different groups of counties in, and adjacent to, the DFW area, and projections of the level of control in the HGA area based on enforceable commitments in the November 1999 SIP for the HGA area. The attainment demonstration SIP also relies on Regional measures applied in east and central Texas. Please refer to the TSD for more details regarding these measures, initiatives, growth rates and emission reductions.

Federal Measures: The State included the following Federal Measures in the Future Year Base Case.

1. On-road mobile sources:
   - Tier 2 vehicle emission standards and federal low sulfur gasoline in DFW and HGA.
   - National Low Emitting Vehicles standards.
   - Heavy-duty diesel standards.

We believe that the projected growth rates and emissions reductions from the sources subject to the above federal measures were calculated correctly by the State.

2. Off-road mobile sources:
   - Lawn and garden equipment standards.
   - Tier III heavy-duty diesel standards.
   - Locomotive standards.
   - Compression ignition standards for vehicles and equipment.
   - Spark ignition standards for vehicles and equipment.
   - Recreational marine standards.

We believe that the State correctly projected the growth rates and emissions reductions subject to these federal measures.

CAA Statutory Requirements: The State included the following CAA Statutory Requirements in the Future Year Base Case.
   - Phase II reformulated gasoline (RFG) in the DFW four-

county nonattainment area and HGA eight-county nonattainment area

- Texas motorists' choice inspection and maintenance (I/M) program in Harris, Dallas and Tarrant Counties

We believe that the State correctly projected the growth rates and emissions reductions from sources subject to these CAA Statutory Requirements.

State Measures: The State included the following State Measures as local (DFW) area controls in the Future Year Base Case.

- Electric generating and industrial point sources - four county area.
- An expanded vehicle Inspection/Maintenance program - nine county area.
- Low emission diesel fuel - nine county area.
- Heavy-duty diesel operating restrictions - four county area.
- Accelerated purchase of Tier 2/3 non-road compression ignition equipment - four county area.
- Airport ground support equipment electrification - airports of a certain size in the four county area.
- Gasoline heavy equipment engines - nine county area.
- Gas-fired water heaters, small boilers, and process heaters - State-wide.

We have already published actions on some of the above control measures in the Federal Register as discussed below. We believe that the State correctly projected the growth rates for and the emissions reductions from these affected sources.

Local Measures:

1. Speed limit reductions - nine county area.
2. Voluntary Mobile Emissions Program - nine county area.
3. Transportation Control Measures - four county area.

Our proposed action on these three local measures is discussed in more detail later in this section.

Regional measures:

1. Agreed orders with Alcoa, Inc. (formerly Aluminum Company of America) for their Milam Facility, and the Eastman Chemical Company, Texas operations, for their facility near Longview, Texas.
2. Electric generating facilities and cement plants in central and eastern Texas.
3. Low Reid Vapor Pressure Gasoline in eastern and central Texas.
4. Stage I gasoline vapor recovery at gas stations in central and eastern Texas.

We have already published actions on the above control

measures in the Federal Register, as discussed below.

Action needed on Control Measures

We cannot finalize an action upon the Attainment Demonstration SIP, its MVEB, and the State's Request for an Extension of the Attainment Date until we have finalized action on the following:

1. The revised emission specifications in the DFW area for Electric Utility Boilers, Industrial, Commercial or Institutional Boilers and certain Process Heaters (30 TAC sections 117.104, 117.106, 117.108, 117.116, 117.206 as they relate to the DFW area, and the repeal of sections 117.109 and 117.601 as they relate to the DFW area): Proposed approval October 31, 2000. See 65 FR 64914.

2. Vehicle Inspection/Maintenance program (30 TAC 114.2, 114.50 - 114.53).

3. Low emission diesel fuel (30 TAC 114.6, 114.312 - 114.317, 114.319).

4. Non-Road Large Spark-Ignition (LSI) Engines (30 TAC 114.420, 114.421, 114.422, 114.427, and 114.429). Accelerated Purchase of Tier2/Tier3 Non-Road Compression-Ignition Equipment (30 TAC 114.410, 114.412, 114.416, 114.417, and 114.419). Non-Road Construction Equipment Restriction (30 TAC 114.432, 114.436, 114.437, and 114.439). Electrification of Airport Ground Support Equipment (GSE) (30 TAC 114.400, 114.402, 114.406, and 114.409.

5. The State-wide NOx rules for Water Heaters, Small Boilers, and Process Heaters (30 TAC sections 117.460, 117.461, 117.463, 117.465, 117.467, 117.469): Direct final approval effective December 25, 2000. See 65 FR 64148.

6. The agreed orders with Alcoa, Inc. (formerly Aluminum Company of America) for their Milam Facility, and the Eastman Chemical Company, Texas operations, for their facility near Longview, Texas: Direct final approval effective December 25, 2000. See 65 FR 64148.

7. The NOx rules for Electric Generating Facilities and cement plants in East and Central Texas (30 TAC sections 117.131,117.133,117.134,117.135,117.138,117.141,117.143,117.145,117.147,117.149,117.512,117.260,117.261, 117.265, 117.273,117.279, 117.283, 117.524): Proposed approval

October 31, 2000. See 65 FR 64914.

8. Lower Reid Vapor Pressure Gasoline in eastern and central Texas (30 TAC sections 114.1, 114.301, 114.304 - 114.307, and 114.309). Proposed approval November 20, 2000. See 65 FR 69720.

9. Stage I vapor recovery in eastern and central Texas (30 TAC sections 115.222 - 114.229): Proposed approval December 20, 2000. See 65 FR 79745.

10. VOC rules as RACT for batch processing (30 TAC sections 115.160 - 115.169) and wastewater (30 TAC sections 115.140 - 115.149): Proposed approval December 20, 2000. See 65 FR 79745.

11. The administrative revisions to the existing Texas NOx SIP (30 TAC sections 117.101 - 117.121, 117.201 - 117.223, 117.510, 117.520, and 117.570): Proposed approval October 31, 2000. See 65 FR 64914.

12. Texas Clean Fleet Program (30 TAC 114.1, 114.3, 114.150, 114.151, 114.153 - 114.157, 114.201, 114.202, 114.152).

13. The 15% ROP Plan.

14. The Post 1996 ROP Plan.

15. The revisions to the 1990 base year inventory.

16. The speed limit reductions, the VMEP and the TCMs.

17. The finding that major sources of VOCs in the DFW area are meeting RACT.

It should be noted that several of these measures are the subject of ongoing litigation. Should the State lose, and as a result imperil any reductions needed for attainment, and there are no measures which make up the lost reductions, we may have to disapprove the attainment demonstration SIP.

What are the local initiatives and are they approvable?

The State submitted three local initiatives; Speed limit reductions in the nine county area (Dallas, Tarrant, Collin, Denton, Ellis, Johnson, Parker, Rockwall, and Kaufman Counties), a Voluntary Mobile Emissions Program in the nine county area, and

Transportation Control Measures in the four county area.

Speed limit reductions

The Texas Department of Transportation (TxDOT)revised regulations relating to speed limits to allow TNRCC to submit a request to change speed limits for environmental reasons when justified. Please see adopted rules, 25 TexReg 5686, June 9, 2000; and proposed rules, 25 TexReg 2018, March 10, 2000). TxDOT, using this authority, will lower all 70 mile per hour (mph) speed limits to 65 mph, and all 65 mph speed limits to 60 mph in the four county area. These slower speeds are anticipated to reduce the emissions of NOx and improve air quality. We propose approval of the speed limit reductions control measure.

Changes to 43 TAC section 25 provide the authorization to TxDOT to change speed limits for environmental reasons and specify the mechanisms to implement the changes.

Voluntary Mobile Emissions Program (VMEP) Reductions

What is EPA's VMEP?

Voluntary mobile source strategies that attempt to complement existing regulatory programs through voluntary, non-regulatory changes in local transportation activities or changes in in-use vehicle and engine composition constitute the VMEP. The Clean Air Act allows SIP credit for new approaches to reducing mobile source emissions. This flexible approach is set for in section 110. Economic incentive provisions are in sections 182 and 108 of the Act. Credits generated through VMEP can be counted toward attainment and maintenance of the NAAQS. Up to 3% of the total future year emissions reductions required to attain the appropriate NAAQS may be claimed under the VMEP policy.

What requirements must be met to qualify for SIP credit?

The basic framework for ensuring SIP credit for VMEPs is spelled out in guidance that came out under a memorandum from Richard D. Wilson, Acting Assistant Administrator for Air and Radiation, dated October 24, 1997, entitled "Guidance on Incorporating Voluntary Mobile Source Emission Reduction Programs in State Implementation Plans (SIPs)." Generally, to obtain credit for a VMEP, a State submits a SIP that:

1) identifies and describes a VMEP;
2) contains projections of emission reductions attributable

to the program, along with any relevant technical support documentation;
3) commits to evaluation and reporting on program implementation and results; and
4) commits to the timely remedy of any credit shortfall should the VMEP not achieve the anticipated emission reductions.

More specifically, the guidance suggests the following key points be considered for approval of credits. The credits should be: quantifiable, surplus, enforceable, permanent, and adequately supported.

In addition, VMEPs must be consistent with attainment of the standard and with the Rate of Progress requirements and not interfere with other Clean Air Act requirements.

What did the State submit?

The State submitted program descriptions that projected emission reductions attributable to each specific program as part of the DFW attainment demonstration submitted April 25, 2000. The State commits to evaluating each program to validate estimated credits. Table 2 lists the programs and projected credits. Programs submitted with no credit assigned are listed in Table 3.

Table 2. Voluntary Mobile Emission Reduction Programs and Credits Claimed

Program Type	VOC Benefits (tons per day)	NOx Benefits (tons per day)
Alternative Fuel Program	0.18	0.18
Employee Trip Reduction	0.29	0.53
Public Education Campaign/Ozone Season Fare Reduction	0.08	0.15
Tier II Locomotive Engines	0 to 0.6	0 to 3.0
Vehicle retirement Program/Vehicle Maintenance*	0.56	0.77
Total Benefits (tpd)	1.11 to 1.71	1.63 to 4.63

* Emission benefits quantified for the Vehicle Retirement Program only. Emission benefits for Vehicle Maintenance are credited in the Vehicle Inspection and Maintenance Program

Table 3. Voluntary Emission Reduction Programs with No Credit Assigned

Sustainable Development
Non-Road Ozone Season Reductions
Off-Road Heavy Duty Diesel Engine Retrofits

The State's goal is 5.0 tons per day of NOx benefit from the VMEP program. This is within the 3% criteria in our guidance. The State has committed to evaluating and reporting on the program implementation and results and to timely remedy of any credit shortfall.

The State also committed to additional Transportation Control Measures that can be substituted for any shortfall in credit from the estimated credits for VMEP. These include Signal Improvements and Freeway Corridor Management.

Do the VMEPs meet the requirements for approval?

A detailed analysis of all the VMEP measures can be found in the TSD for this document. For each creditable VMEP, the measure was found to be quantifiable. The reductions are surplus by not being substitutes for mandatory, required emission reductions. The measures will be enforced by the State. The reductions will continue at least for as long as the time period in which they are used by this SIP demonstration, so they are considered permanent. Each measure is adequately supported by personnel and program resources for implementation.

Alternative Fuel Program

In the Alternative Fuel Program, Congestion Mitigation Air Quality (CMAQ) funds are used to pay a portion of the incremental cost of alternative fueled vehicles (AFV) for public fleets. The program is also available to transit agencies, and private companies. Recipients receive up to 80% of the incremental cost of an AFV compared to its diesel or gasoline equivalent. The Regional Transportation Council approves the funding, and staff members of the North Central Council of Governments administer them.

The program projects emission reductions from 2,985 dedicated AFVs will be 47 tons per year. The NCTCOG commits to monitoring and reporting the emission reduction to the TNRCC. No shortfall in this program is expected because

credits are based on actual vehicles as opposed to projections or estimates.

The State submitted data showing details of the fleets in the DFW area who currently own and operate dedicated AFVs, the emission benefits of each fleet and the costs associated with the emission reductions. Assumptions and the methodology used for the calculations are an acceptable approach to determining emission reductions.

The Alternative Fuel program meets the requirements of the VMEP. This measure is consistent with the SIP and does not interfere with any other CAA requirements.

Employee Trip Reduction Program

The Employee Trip Reduction Program is a cooperative effort between the NCTCOG, Dallas Area Rapid Transit (DART), the For Worth Transportation Authority (the T), and other public and private sector organizations in the form of Transportation Management Associations. The program is aimed at all employers in the region with 100 or more employees. There are over 3,200 large employers in this region. The program emphasizes implementation of rideshare programs, telecommuting, flexible work hours programs, transit pass subsidies, bicycling, and similar strategies. The transportation/transit authorities market the programs and assist large employers with setting up their program. They provide marketing materials and information on tax credits and other incentives for employer participation. Over 394 large employers and 346 smaller employers currently participate involving 77,456 employees. A steady growth in employee participation in trip reduction programs is expected due to robust employment growth and construction of alternative transportation infrastructure.

The ETR program is expected to produce a VMT reduction of 414,334 miles during the morning commute period in 2007. The emission reductions are projected to be 1,058.6 pounds per day of NOx and 584.1 pounds per day of VOC.

The ETR program is funded by NCTCOG in the Transportation Implementation Program (TIP). A program requirement of the TIP is performance reporting for monitoring expected benefits. Analyses conducted in Major Investment Studies help define areas in the region that are targeted by this program. Travel Demand Management program commitments from large employers have been solicited. The

NCTCOG is responsible for monitoring and reporting the emission reduction benefits to the State.

Assumptions on annual increases for employment at large employers, the total growth in workforce, and the proportion of participation remaining constant were used along with the average vehicle occupancy of 1.14 to estimate the number of vehicles that would be effected. Using the average trip distance from the Travel Demand Model, and adjusting for just the morning trips, a reduction of VMT was calculated that translated into the emission reductions expected. This is an acceptable approach for estimating reductions.

The Employee Trip Reduction Program meets the requirements for a VMEP. This measure is consistent with the SIP and does not interfere with any other CAA requirements.

Public Education Campaign/Ozone Season Fare Reduction

This program will be partially implemented through the current Ozone Action Day program that operates from May 1 through October 31. The Ozone Action Day program promotes voluntary measures that both businesses and individuals can take to help improve the region's air quality. Committed program participants include DART, The T, and Denton's Program for Aging Needs, Inc. as well as an uncommitted number of volunteer businesses and individuals. The transit participants offer reduced fares on all Ozone Action days throughout the ozone season. The fares will be subsidized through the use of new CMAQ funds.

The anticipated emission reductions are 0.114 tons per day of NOx and 0.063 tons per day of VOC. These estimates are based on the number of miles of VMT that are removed on those days. Increase in ridership is estimated to be 5%. Other factors such as average trip distance and vehicle emissions are the same as those used for other calculations. This is an acceptable approach to estimating emission reductions for this program. The NCTCOG is responsible for monitoring and reporting emission reductions to the State.

The Public Education Campaign/Ozone Season Fare Reduction Program meets the requirement of the VMEP. This measure is consistent with the SIP and does not interfere with any other CAA requirements.

Tier II Locomotive Engines

This program seeks to have only Tier II locomotives operating in the DFW ozone nonattainment area by the 2005 ozone season. The North Texas Clean Air Steering Committee has oversight of this program that will be implemented by the NCTCOG. Commitments from Burlington Northern/Santa Fe, Union Pacific, and Kansas City Southern Railways, the three national railroads that operate in the DFW area, are being sought.

Estimates of emission reductions rely on a 100% voluntary participation. Reductions are calculated assuming a 37% reduction in NOx from the 2007 baseline inventory. The maximum reductions that could be obtained from this program are 3 tons per day. In the SIP the reductions are listed anywhere from zero to 3 tpd to allow for partial or no participation. We find this to be an acceptable approach to estimate emissions from this program. The NCTCOG will be responsible for monitoring and reporting any emission reductions from this program to the State.

The Tier II Locomotive Engine Program meets the requirements for VMEP. This measure is consistent with the SIP and does not interfere with any other CAA requirements.

Vehicle Maintenance/Retirement Program

This program consists of two parts: a vehicle maintenance program and a vehicle early retirement program. The early retirement program yields the emission reduction credits because credit for vehicle maintenance is already taken in the vehicle inspection and maintenance program. This discussion will focus on the vehicle early retirement program.

The purpose of this program is to remove pre-1980 model year light duty vehicles (cars and trucks) or other high emitting light duty vehicles that are too costly to repair from use. Implementation of this program will rely on government agencies, private industry, and the general public. Program funding is expected to come from the private sector or from a possible $1.00 surcharge added to every I/M test through legislative action. The NCTCOG Regional Transportation Council has committed $3.6 in the TIP to serve as supplemental funding if needed.

Vehicles will be purchased from either city impound lots or the general public. Replacement vehicles will be OBD II compliant, and will be funded through this program.

Most of the general public will receive partial funding to purchase a cleaner vehicle, while some people with qualifying low incomes will not have to pay any of the costs. Two thousand five hundred high emitting vehicles are expected to participate in the program each year starting in 2002.

The emission benefits from the vehicle retirement program is expected to be 0.77 tons per day. Our Guidance for the Implementation of Accelerated Retirement of Vehicles Programs was used to calculate emissions. Expected emissions, VMT, and number of vehicles were used to make the calculations. This is an acceptable approach for determining emission reductions.

The Vehicle Maintenance/Retirement Program meets the requirements for VMEP. This measure is consistent with the SIP and does not interfere with any other CAA requirements.

The following programs are included in the SIP as voluntary programs, but no credits are claimed.

Sustainable Development

The Sustainable Development Program is part of the region's newly adopted Mobility Plan. The Plan recognizes that the way transportation is planned, programmed and constructed must be responsive to regional trends in economic expansion, population growth, development, quality of life, public health and the environment in order to prevent the continued decline of the region's air quality status and avoid risk of sanctions on Federal transportation funds. The objectives of the Plan are to 1) respond to local initiatives for Town Centers, Mixed Use Centers, Transit Oriented Development, Infill/Brownfield Developments and Pedestrian oriented projects; (2) complement rail investments with coordinated investments in par and ride, bicycle and pedestrian facilities, and (3) reduce the growth in VMT per person.

Municipal planners, the Texas Department of Transportation, cities, and counties favor sustainable development in each stage of transportation planning. Consequently businesses and individuals will be given more choices when they build or develop their businesses or homes. More dense, multi-use land use leads to lower VMT. Lower VMT results in lower NOx and VOC emissions.

No emission credits are claimed at this time. Implementing these strategies will facilitate the development of projects for which the region can take air quality credits in the future. No program commitments are needed at this time.

Non-Road Ozone Season Reductions

The "Morning Air Measures" program, also known as "AM AM" targets specific nonregulated sources of off-road emissions for voluntary reductions during the morning hours when ozone precursors are added to the atmosphere. The targeted sources are local governments, landscaping businesses and golf courses, small engine operators, and individuals. The intent is to defer these emissions to later in the day, slowing the formation of ozone. The reductions from this program are expected to be minimal because most of these activities will occur later in the day.

Voluntary commitments will be sought from participants other than individuals. Public outreach should generate some residential participation which will be determined through periodic surveys over 3 years. Some funds may be allocated for a lawnmower buy-back program.

At this time, the State is not claiming specific emission reductions credits for this measure, so commitments are not required. Should emission reduction credits be sought in the future, specific commitments may be needed. The NCTCOG will be responsible for evaluation and reporting to the State.

Off-Road Heavy Duty Diesel Engine Retrofits

Owners and operators of heavy-duty diesel off-road equipment in the 12 county DFW metropolitan area will be encouraged to voluntarily retrofit engines using selective catalytic reduction or other technologies. The NCTCOG will facilitate the program by promoting a program following the guidelines of EPA's "Diesel Retrofit Initiative" announced March 20, 2000. Off-road retrofit is preempted by the Clean Air Act but may be implemented as a voluntary program.

No credit is being taken at this time because there is insufficient data to evaluate the emission reductions expected from this program. Incentives may be offered if CMAQ funds become available under TEA-21 grant funds. The

NCTCOG will be responsible for evaluation and reporting to the State.

What action is EPA taking on the VMEP?

The DFW Attainment SIP VMEP meets the criteria for credit in the SIP. The State has shown that the credits are quantifiable, surplus, enforceable, permanent, adequately supported, and consistent with the SIP and the Act. We propose to approve the VMEP portion of the Texas SIP.

Transportation Control Measures (TCMs)

The State has included a variety of TCMs in the SIP as a control strategy for attainment of the ozone NAAQS. The specific TCMs have been described in detail in Appendix G of the SIP and will be incorporated by reference in the Code of Federal Regulations in the final approval action. Detailed information is necessary for those TCMs used as emissions reduction measures in the SIP to ensure that they are specific and enforceable as required by the Act and reflected in our policy. The TCMs' description in the SIP includes identification of each project, location, length of each project (if applicable), a brief project description, implementation date, and emissions reductions for both VOC and NOx.

The process for TCM selection and inclusion in the SIP are based on consideration of the all potential measures specified in Section 108 of the Clean Air Act and other emerging transportation related control measures that may be reasonably available for implementation and emissions reductions. The North Central Texas Council of Governments (NCTCOG), as the MPO for the Dallas-Fort Worth Metropolitan Area and the Denton and Lewisville Urbanized Areas, is responsible for project selection under TEA-21 for CMAQ and STP-MM Federal funding categories.

The selection of projects for funding focuses on a technically based project selection and evaluation process which ensures that the most cost-effective projects are selected when balanced against additional criteria deemed important to the region including air quality, mobility, financial commitment, and multimodalism. The criteria used for selection of all projects (including TCMs) are (a) Cost-Effectiveness, (b) Air Quality/Energy Conservation, (c) Project Commitment/Local Cost Participation, (d) Intermodal/Multimodal Projects/Social Mobility, and (e)

Congestion Management Plan/Transportation Control Measures. A numerical rating scheme is used for the selection, and the methodology is documented in the transportation improvement program. Subsequently, the inventory of locally selected TCMs are proposed to the TNRCC for further consultation in terms of emissions reductions and for potential inclusion in the applicable SIP. After the review of the proposed TCMs, if the State agrees, the final list of TCMs are included in the SIP for emissions reduction purposes.

The TCMs identified through this process and included in the SIP are contained and funded in the metropolitan transportation plan (MTP) and transportation improvement program (TIP) to ensure funding for implementation. We propose approval of the transportation control measures.

What are the projected NOx reductions from the Federal and State control measures and local initiatives?

Table 4 provides the projected NOx reductions for the 2007 attainment year resulting from the Federal and State rules, and the local initiatives.

Table 4: NOx Reduction Estimates (tons per day)

Federal Measures	Reduction
On-road mobile	93.00
Off-road mobile	48.00
Total Federal Measures	141.00
State Measures	
Major point sources	129.00
Inspection/Maintenance	54.45
Low emission diesel fuel	3.48
HD diesel oper. restrictn (est)	2.50
Acc purchase Tier II/III spark	13.80
Airport GSE	9.54
Heavy equipment gas engines	1.80
Gas-fired water heaters, etc	0.50
Total State measures	215.07
Local Initiatives	
Speed limit reduction	5.42
VMEP (2.4 tpd - 5.4 tpd)	5.00
TCMs	4.73

Total Local Initiatives	15.15
TOTAL NOX REDUCTIONS	371.22

G. Motor Vehicle Emissions Budget

What is a Motor Vehicle Emissions Budget (MVEB) and why is it important?

The MVEB is the level of total allowable on-road emissions established by a control strategy implementation plan or maintenance plan. In this case, the MVEB establishes the maximum level of on-road emissions that can be produced in 2007, when considered with emissions from all other sources, which demonstrate attainment of the NAAQS. It is important because the MVEB is used to determine the conformity of transportation plans and programs to the SIP, as described by section 176(c)(2)(A) of the Act.

What are the MVEBs established by this plan and proposed for approval by this action?

The MVEBs established by this plan and that the EPA is proposing to approve are contained in Table 5.

Table 5: 2007 Attainment Year Motor Vehicle Emissions Budgets (tons per day)

Pollutant	**2007**
VOC	107.60
NOx	164.30

What is the State's commitment to revise the Motor Vehicle Emissions Budgets with MOBILE6?

All States whose attainment demonstration includes the effects of the Tier 2/sulfur program have committed to revise and resubmit their motor vehicle emissions budgets after we release MOBILE6. The State has begun its public comment process on an enforceable commitment and has committed to performing new mobile source modeling for the DFW area, using MOBILE6, within 24 months of the model's release. The public hearing is scheduled for January 4, 2001. In addition, the enforceable commitment includes a provision stating that if a transportation conformity analysis is to be performed between 12 months and 24 months after the release of MOBILE6, transportation conformity will not be

determined until the State submits an MVEB which is developed using MOBILE6 and which we find adequate. The North Central Texas Council of Governments and the Department of Transportation have been informed of the commitment.

After adoption by the Commissioners, the Governor of Texas must submit the enforceable commitment to us. If the State fails to meet its commitment to submit revised budgets using MOBILE6, we could make a finding of failure to implement the SIP, which would start a sanctions clock under section 179 of the Act.

What is the Applicable Budget to use for Conformity Analysis?

The proposed approval of the MVEB in Table 5 would be effective for conformity purposes only until revised motor vehicle emissions budgets are submitted and we have found them adequate. In other words, the budgets that are part of this attainment demonstration will apply for conformity purposes only until there are new, adequate budgets consistent with the State's commitments to revise the budgets. The revised budgets will apply for conformity purposes as soon as we find them adequate.

We are proposing to limit the duration of our approval in this manner because we are only proposing to approve the attainment demonstrations and their budgets because the States have committed to revise them after we release MOBILE6 and after the State conducts its mid-course review. Therefore, once we have confirmed that the revised budgets are adequate, they will be more appropriate than the budgets we are proposing to approve for conformity purposes now.

If the budgets we propose to approve raise issues about the sufficiency of the attainment demonstration, we will work with the State. If the revised budgets show that motor vehicle emissions are lower than the budgets we approve, a reassessment of the attainment demonstration's analysis will be necessary.

This action does not propose any change to the existing transportation conformity rule or to the way it is normally implemented with respect to other submitted and approved SIPs, which do not contain commitments to revise the budget.

H. EPA's Analysis

Did the State adequately document the techniques and data used to derive the modeling input data and modeling results?

Yes, the submittal from the State thoroughly documented the techniques and data used to derive the modeling input data. The submittal adequately summarized the modeling outputs and the conclusions drawn from these model outputs. The submittal adequately documented the State's weight-of-evidence determinations and the bases for concluding that these determinations support the attainment demonstration.

Did the modeling procedures and input data used comply with the Environmental Protection Agency guidelines and Clean Air Act requirements?

Yes, the modeling procedures and input data (including the emissions inventory inputs and procedures) meet the requirements of the Act and are consistent with our July 1991 and June 1996 ozone modeling guidelines.

Does the emission control strategy meet the requirements of the Clean Air Act?

Yes, the selected emission control strategy, based upon modeling and the WOE techniques, plus additional information regarding the effect of HGA upon DFW, demonstrates attainment of the 1-hour ozone standard in DFW.

Does the Weight-of-Evidence support the attainment demonstration?

Yes, the submittal adequately documented the State's WOE determinations and the bases for concluding that these determinations adequately complement the attainment demonstration.

The WOE, when viewed in aggregate with the modeling, shows attainment of the standard and thus we are proposing approval.

Has the State adopted the selected emission control strategy and has the State adopted the emission control regulations needed to implement the emission control strategies?

Yes, the State has adopted and submitted the emission control strategies and all associated emission control regulations, orders, and the TCMS, Speed Limit Reductions, and the VMEP initiatives.

Has the State adopted all local measures required by the Clean Air Act for the area's current ozone classification?

Yes, the State has adopted all VOC and NOx emission control requirements required under the Clean Air Act (Act) for a serious ozone nonattainment area. Please see the TSD for a listing of requirements and the dates they were satisfied.

It is our position that the State of Texas has met the 1998 Transport Policy's criteria for adoption and submittal to EPA for approval of all measures required under the Act for an area classified as serious.

Has the State implemented all reasonably available control measures?

Yes. Section 172(c)(1) of the Act requires SIPs to provide for the implementation of all reasonably available control measures (RACM) as expeditiously as practicable and for attainment of the standard. We have previously provided guidance interpreting the RACM requirements of 172(c)(1) in the General Preamble. See 57 FR 13498, 13560 (April 16, 1992). In the General Preamble, we indicated our interpretation of section 172(c)(1), under the 1990 amendments, as imposing a duty on States to consider all available control measures and to adopt and implement such measures as are reasonably available for implementation in the particular nonattainment area. We also retained our pre-1990 interpretation of the RACM provisions that where measures that might in fact be available for implementation in the nonattainment area could not be implemented on a schedule that would advance the date for attainment in the area, we would not consider it reasonable to require implementation of such measures. We indicated that States could reject certain RACM measures as not reasonably available for various reasons related to local conditions. A State could include area-specific reasons for rejecting a measure as RACM, such as the rejected measure would not advance the attainment date, or technological and economic feasibility in the area.

We also issued a recent memorandum reaffirming our position on this topic, "Guidance on the Reasonably Available Control Measures (RACM) Requirement and Attainment Demonstration Submissions for Ozone Nonattainment Areas." John S. Seitz, Director, Office of Air Quality Planning and Standards, dated November 30, 1999. A copy can be obtained from www.epa.gov/ttn/oarpg/t1pgm.html. In this memorandum, we state that in order to determine whether a state has adopted all RACM necessary for attainment and as expeditiously as practicable, the state will need to provide a justification as to why measures within the arena of potential reasonable measures have not been adopted. The justification would need to support that a measure

was not reasonably available for that area and could be based on technological or economic grounds.

We reviewed additional potential available measures, as documented in the RACM analysis in the TSD (Appendix C) for this proposed rulemaking. Our analysis showed that the State is already controlling the significant major point sources and area sources to RACM levels and the SIP contains the transportation control measures reviewed nationally, as well as a motor vehicle Inspection and Maintenance program. Based on this analysis, we propose to conclude that any remaining evaluated measures are not reasonably available for the specific DFW area, because (a) some would require an intensive and costly effort for numerous small area sources or transportation control measures, and (b) since the DFW area relies in part on reductions from the upwind HGA area which are substantial, and the reductions projected to be achieved by the evaluated additional set of measures are relatively small, they would not produce emission reductions sufficient to advance the attainment date in the DFW area and, therefore, should not be considered RACM.

Although we encourage areas to implement available RACM measures as potentially cost effective methods to achieve emissions reductions in the short term, we do not believe that section 172(c)(1) requires implementation of potential RACM measures that either require costly implementation efforts or produce relatively small emissions reductions that will not be sufficient to allow the DFW area to achieve attainment in advance of full implementation of all other required measures.

Has the State established an acceptable MVEB?

The MVEB budget submitted by the State for the DFW area is adequate and is consistent with all pertinent SIP requirements, and the MVEB is proposed for approval.

Does the DFW area meet the RACT requirements for major source VOC emissions?

On March 7, 1995, as part of our action approving VOC requirements, we found that the State had implemented RACT on all major sources in the DFW area except those that were to be covered by post-enactment Control Technique Guidelines (CTG's)(44 FR 12438). Since that time many expected CTGs were issued as Alternative Control Technique documents - ACTs. Of the expected CTGs and ACT's, DFW had major sources in the following categories; batch processing, reactors and distillation, wood furniture and aerospace coating. We have approved measures for

all of these categories as meeting RACT. (See the TSD for this action for dates.)

With regard to Aerospace coatings, we have approved Alternate RACT determinations for the major sources in the DFW area: Lockheed-Martin, Bell Helicopter Textron, and Raytheon Texas Instruments Systems, Inc. January 20, 1994 (See 59 FR 02532), May 30,1997 (See 62 FR 29297), and February 9, 1998 (See 63 FR 6491), respectively. With these Alternative RACT determinations, we concluded that RACT was in place for these Aerospace coating sources. On March 27, 1998, we published the National Emission Standards for Hazardous Air Pollutants (NESHAP) final rule and the Control Technique Guideline for Aerospace Manufacturing and Rework facilities. (see 63 FR 15006). The State submitted revisions to its coating rules on July 13, 2000 to ensure the control requirements for Aerospace companies remained consistent with the NESHAP rule. At the same time, the State requested that these replace the Alternative-RACT plans as a part of the Texas SIP. The revised 2000 aerospace rules provide provisions that are more consistent with the new MACT standards and we anticipate that we will propose approval of these provisions. In the mean time, we believe the previously approved alternative RACT plans continue to meet the RACT requirements for these three sources.

Also, with the reclassification of the DFW area to serious, the major source size was decreased to 50 tons per year. This necessitated that the State revise its rules for bakeries and adopt rules for the large offset lithographers category. We have approved the rule revisions for bakeries and the new rules for offset lithographers as meeting the RACT requirements. (See TSD for dates and cites).

Thus, it is our position that RACT is in place for all major sources of VOCs in the DFW area.

Was the demonstration of transport from the HGA area acceptable to support the Request for Extension of the Attainment Date?

The policy for the extension of an ozone attainment date is discussed in the BACKGROUND section of this notice. The State's compliance with these requirements is discussed here.

a. Identification of the area as a downwind area affected by ozone transport.

We have reviewed the photochemical modeling demonstrations,

and are proposing to agree with the State that the July 3, 1996, episode adequately demonstrates transport of pollutants from the HGA area. We are proposing that this transported pollution affects DFW's ability to attain by the current attainment date. Thus, the DFW and HGA areas are inextricably linked. Without controls in the HGA area, the DFW area's ability to attain is jeopardized. We, therefore, propose to find that the State's demonstration of ozone transport meets the criteria in our attainment date extension policy.

b. Submittal of an approvable attainment demonstration.

EPA's review of the attainment demonstration SIP shows that it should be approved. The State has modeled and adopted an acceptable control strategy that demonstrates attainment. We are proposing to approve the attainment demonstration SIP, and to agree that it meets the criteria in the July 1998 transport policy and all other EPA guidance and the regulatory and statutory requirements.

c. Adoption of all applicable local measures required under the area's current ozone classification.

Texas has adopted all VOC and NOx related emission control requirements required by the Act for a serious ozone nonattainment area. A listing of applicable CAA serious classification-related VOC and NOx related regulations and their state-adopted dates for the DFW area, is provided in the TSD to this rulemaking.

It is our position that the State of Texas has met the 1998 Transport Policy's criteria for adoption and submittal of all measures required under the Act for an area classified as serious. We must finalize approval actions upon the remaining serious area requirements – the 15% ROP Plan, the Post-96 ROP Plan, the I/M SIP, and the Clean-fuel Vehicle SIP, before we can make a final finding that the DFW area is meeting all of its classification's statutory requirements, however.

d. Implementation of all adopted measures by the time upwind controls are expected.

All of the NOx and VOC rules will be implemented as expeditiously as practicable, but no later than 2005, two years before the HGA attainment date of November 15, 2007.

We are proposing to find that this transport policy criteria has been met by the State. We are of the opinion that the phase-in compliance dates are as expeditious as practicable compared

with the compliance dates of similar sources in serious ozone nonattainment areas of the country.

II. POST 1996 RATE OF PROGRESS PLAN

A. Proposed Action

What action are we taking?

We are proposing approval of the Post 1996 Rate of Progress (ROP) plan (9% plan), submitted by the Governor on October 25, 1999, which is designed to reduce ozone forming emissions from the baseline emissions by 9% in the DFW nonattainment area for the years 1997-1999. This plan meets the Reasonable Further Progress requirements of the Act (section 182(c)(2)). In addition, we are proposing to approve the MVEBs associated with the 9% plan. We are also proposing to approve the changes to the 1990 base year emissions inventory for the DFW area. The SIP was submitted October 25, 1999, and found complete January 6, 2000.

B. Calculation of Requirements

How do we calculate the needed VOC emissions reductions?

Calculating the needed emission reductions is a multi-step process as described below.

Emissions Inventory:

The 1990 Final Base Year Inventory is the starting point for calculating the reductions necessary to meet the requirements of the 1990 Act. The 1990 Final Base Year Inventory includes all area, point, non-road mobile, and on-road mobile source emissions in the four county DFW ozone nonattainment area. The 1990 base year inventory was originally approved November 8, 1994 (59 FR 55586). The State revised the VOC inventory on August 8, 1996. These changes were approved November 10, 1998. The state revised the 1990 base year VOC inventory again with the October 25, 1999, SIP revision. The October 25, 1999, SIP revision also contained the State's first revisions to the 1990 base year NOx emissions inventory. The changes resulted from data gathered for the 1993 and 1996 periodic inventories. Analysis of the changes in the periodic inventories was backcast to the 1990 inventory for consistency since the 1990 inventory remains the ROP beginning point. We have reviewed the inventory revisions and they have been developed in accordance with our guidance on emission inventory preparation. Thus, we are proposing approval of the

October 25, 1999, revisions to the 1990 base year inventory. The revised 1990 base year inventory is summarized in Table 6. For more detail on how emissions inventories were estimated, see Appendix H in the TSD for this action.

TABLE 6: 1990 Rate-of-Progress Base Year emissions Inventory (tons per day)

Base Year Inventory		
Source Type	**VOC**	**NOx**
Point	63.98	71.76
Area	174.02	19.99
On-road Mobile	306.60	293.03
Non-road Mobile	105.19	166.05
Total	649.79	550.83

Adjusted Base Year Inventory:

Section 182(b)(2)(C) explains that the baseline from which emission reductions are calculated should be determined as outlined in section 182(b)(1)(B) for 15% ROP plans. This requires that the baseline exclude emission reductions due to Federal Motor Vehicle Control Programs (FMVCP) promulgated by the Administrator by January 1, 1990, and emission reductions due to the regulation of Reid Vapor Pressure promulgated by the Administrator prior to the enactment of the Clean Air Act Amendments of 1990. These measures are not creditable to the Rate of Progress Plans.

Growth Estimates:

To establish the total emissions reductions necessary, The State needed to project growth to 1999. The State used the following acceptable techniques to project growth for area, non-road mobile, and on-road mobile sources.

1. Area sources - Bureau of Economic analysis (BEAFAC) growth factors were used.

2. Non-road mobile sources - The locomotive general aviation, and commercial aviation factors came from the EPA's Economic Growth analysis System (EGAS). The small engine growth factor used was the average of the population growth in the counties in

the nonattainment area.

3. On-road sources - The NCTCOG travel demand model was used to project the Vehicle Miles Traveled (VMT). Model runs were made using the base year emissions and the projected year emissions based on the change in VMT and the implementation of control strategies to determine the growth in emissions between 1990 and 1999.

4. Point sources - The State documented in Appendix H the projection of VOC and NOx point source emissions to 1999. The State used results from a survey of sources included in the 1996 emissions inventory questionnaire which asked the sources to document the reasons for increases and decreases in emissions. Using this information, the State was able to separate emissions that may have occurred due to a change in the calculation method for emissions versus equipment shutdowns or start-up, and process increases and decreases. The State used the data from the 1996 inventory and the questionnaire results to refine the estimate of growth to 1999. We have reviewed this methodology and find it acceptable.

For more detail on how emissions growth was estimated see Appendix H of the submittal.

Calculation of Target Level:

Table 7 shows how the emissions inventory, adjusted inventories and growth estimates are used to calculate the target levels of emissions and needed emission reductions.

Table 7: Calculation of Required VOC Reductions (tons per day)

1990 Emission Inventory	649.79
1990 Adjusted Relative to 1996	547.54
1990 Adjusted Relative to 1999	535.78
RVP and Fleet Turnover	11.76
9% of 1990 Adjusted Relative to 1999	48.22

1996 Target level	465.52
1999 Target level	405.54
1999 Projection	575.28
Total Reductions required by 1999	169.74
Reductions required by 15%	139.98
Additional Reductions Required	29.76

How are those emission reductions achieved?

Table 8 documents how the VOC emission reductions for this 9% plan are to be achieved. The following control measures are used: Aircraft Engines, Transportation Control Measures (TCMs), Windshield washer fluid, Utility Engines 1997 - 1999, Underground Storage Tank Remediation, vehicle Tier 1, vehicle Inspection/Maintenance, and RFG.

The State also revised its estimates of on-road motor vehicle emissions based on vehicle registration data updated to 1998. We are proposing to find them acceptable.

The State included a variety of TCMs in the SIP as a control strategy for attainment of the ozone NAAQS. The specific TCMs are described in detail in Appendix G of the SIP and will be incorporated by reference in Code of Federal Regulations in the final approval action. Please refer to the detailed discussion of TCM requirements under Transportation Control Measures in the Emission Control Strategy sub-section (sub-section I.E)of this action.

The TCMs identified through this process and included in the SIP are contained and funded in the metropolitan transportation plan (MTP) and transportation improvement program (TIP) to ensure funding for implementation.

Table 8: Summary of VOC Emission Reductions (tons per day)

Required Reduction	29.76
Creditable Reductions	
Aircraft Engines	1.52
TCMs	3.74
Windshield washer fluid	0.29
1998 vehicle registration	3.57
Utility Engine 1997-1999	2.37
UST remediation	1.81
Tier 1, I/M, RFG	16.82
Total	30.12

Does the plan achieve the goal of a 9% reduction in VOCs from the baseline for 1997 to 1999?

Yes. Since the required reductions are 29.76 tons per day and the creditable reductions are 30.12 tons per day, the plan has excess reductions of 0.36 tons per day and achieves the goal; therefore, we are proposing approval of the Post 1996 ROP Plan.

Did the State submit additional reductions?

Yes. The State also submitted NOx reductions. The State's basic NOx RACT rules were approved September 1, 2000. See 65 FR 53172. We are accepting the NOx reductions as creditable reductions.

Table 9: Summary of NOx Emission Reductions (tons per day)

Required Reduction	0.00
Creditable Reductions	
NOx RACT	10.45
RFG, I/M, FMVCP Tier I	56.25
Off-road heavy duty diesel	11.98
Total	78.68

C. Motor Vehicle Emissions Budget

What are the MVEBs established by this plan and approved by

this action?

The MVEBs established by this plan and that we are proposing to approve are contained in Table 10. The MVEBs have been found to meet the adequacy criteria and upon further review of the SIP for approvability continue to be consistent with ROP.

Table 10: 1999 9% ROP SIP Motor Vehicle Emissions Budgets (tons per day)

Pollutant	1999
VOC	147.22
NOx	284.14

III. 15% RATE OF PROGRESS PLAN

A. Proposed Action

What action are we taking?

We are proposing full approval of the 15% plan submitted on August 8, 1996, contingent upon us finalizing approval of the State's I/M program for the DFW area. The 15% plan was given conditional, interim approval on November 10, 1998, pending corrections to the DFW I/M program. It was given conditional, interim approval because it relied on emissions reductions from the I/M program that received conditional, interim approval. For further information on the I/M conditional, interim approval, see 62 FR 37138, published on July 11, 1997. We found that the State had met the conditions of the conditional approval. On April 23, 1999, we removed the conditions and granted Texas a final interim approval. See, 64 FR 19910. The interim approval expired on February 11, 1999. Texas has submitted significant revisions to the I/M program for the DFW area. The revisions expand the program from the 2 core nonattainment counties to the 4 counties in the nonattainment area plus 5 additional counties. We are taking a separate action on these I/M revisions. Because the revisions appear to have eliminated the last impediment to full approval of the I/M program for the DFW area, we are proposing full approval of the DFW 15% plan. This proposed full approval of the DFW 15% plan will not be finalized until action on the I/M program is complete. If the I/M program is disapproved, a different action on the 15% plan will have to be taken. See 63 FR 62943 and the 15% plan TSD for additional information on the DFW 15% plan.

How did the Inspection/Maintenance program submitted with the attainment demonstration purport to cure the previous deficiencies?

As stated previously, an interim conditional approval for the Motorist Choice Program was proposed on October 3, 1996 (61 FR 51651). An interim final conditional approval was published on July 11, 1997 (62 FR 37138). The conditions were removed from the interim approval on April 23, 1999 (64 FR 19910). The interim approval status of this program lapsed on February 11, 1999.

The State submitted an approvable 18-month demonstration on February 8, 1999, as required by the National Highway System Designation Act of 1995, Public Law 104-59, section 348(c)(1). The program was not fully approved at that time because one provision of the interim approval remained: that the State provide evidence that the remote sensing program was effective in identifying the shortfall in number of vehicles needed to make up for the lack of a tailpipe testing program in all the nonattainment counties. This evidence has yet to be submitted.

Modeling has since shown that NOx reductions are essential to reaching attainment in the DFW area. As a result, the Texas Motorist Choice I/M program has been revised to include measurement for NOx emissions and to provide additional NOx emission reductions by expanding coverage of the program to all four counties within the DFW nonattainment area (Dallas, Tarrant, Collin and Denton) and selected attainment counties in the DFW consolidated metropolitan statistical area (Ellis, Johnson, Parker, Rockwall, and Kaufman). By revising the program to expand area coverage for NOx SIP credits, the deficiency that prohibited full approval in DFW appears to be cured. All DFW nonattainment counties will be participating in the full program. As indicated above, we have not taken a final action on the I/M submittal. We will be seeking comment on the I/M program in a separate action.